

Course Title	Obstetrics, Infertility & Reproductive medicine				
Course Code	Vet-404				
Course Type	Required				
Level	Undergraduate				
Year / Semester	Year 4/ Semester 1 (Fall)				
Teacher's Name	Course Lead: Contributor:				
ECTS	6	Lectures / week	3	Laboratories / week	2
Course Purpose and Objectives	<p>The main objectives of the course are:</p> <ul style="list-style-type: none"> • To build upon the knowledge of reproduction acquired in previous courses and to ensure that students are fully conversant with the endocrinological, physiological, anatomical, and behavioral changes that occur in normal animals and their involvement in infertility • To ensure that students will be able to recognize, diagnose and treat the important clinical conditions affecting the reproductive system in the domestic species • To ensure that students are able to identify and manage the non-infectious and infectious causes of infertility and abortion in domestic species • To ensure that students have a satisfactory knowledge of the diseases that may affect domestic animals during pregnancy and following the birth of their young • To ensure that students have a good knowledge of normal birth in the large and small domestic species and common exotics, and that they can use this knowledge in the diagnosis and effective treatment of dystocia • To enable students to evaluate the fertility of groups of animals and to be able to promote high levels of fertility in such groups commensurate with satisfactory production and good welfare practices. 				

Learning
Outcomes

The following list provides the learning objectives that will be covered in the lectures, lab practical sessions and tutorials of each week:

[Week 1](#)**LOBs covered during lectures:****Canine and Feline**

1. Estrous Cycle of the bitch
2. Estrous Cycle of the queen
3. Breeding soundness examination in the bitch
4. Breeding soundness examination in the queen
5. Canine ovulation timing
6. Serum hormones interpretation
7. Canine breeding management
8. Feline breeding management
9. Feline breeding management

[Week 2](#)**LOBs covered during lectures:**

10. Semen collection and analysis
11. Artificial insemination, vaginal and intrauterine
12. Pregnancy diagnosis
13. Gestational length and fetal age determination
14. Nutrition and exercise in pregnancy
15. Vaccination and medications in the pregnant bitch or queen
16. Neonatal resuscitation

[Week 3](#)**LOBs covered during lectures:**

17. Normal variations of the canine estrous cycle- delayed puberty, split/silent heat
18. Abnormalities of the estrous cycle in the bitch
19. Manipulation of the estrous cycle
20. Pregnancy termination
21. Pregnancy loss
22. Canine brucellosis
23. Metabolic disorders during the pregnancy of the bitch
24. Normal labor
25. Dystocia- recognition, categorization, management, and medical therapy
26. Cesarean section

[Week 4](#)**LOBs covered during lectures:**

27. Post-partum disorders- inappropriate maternal behavior, eclampsia, endometritis
28. Mammary disorders-agalactia, mastitis
29. Feline mammary disorders
30. Neonatology
31. Disorders of the reproductive tract in ovariectomized bitches and queens
32. Infertility versus subfertility in the bitch and queen
33. Cystic endometrial hyperplasia/pyometra complex
34. Acquired male infertility
35. Infectious orchitis and epididymitis
36. Prostatic disorders in the stud dog

Week 5

LOBs covered during lectures:

Equine

37. Stages of the estrous cycle in the mare
38. Examination of the mare for breeding soundness
39. Diseases of the mare's reproductive tract
40. Enlarged ovaries, small ovaries, endometritis, pneumovagina, persistent hymen
41. Ovulation and fertilization
42. Pregnancy diagnosis
43. Endocrinology of pregnancy
44. Complications during pregnancy
45. twinning
46. Elective termination of pregnancy

Week 6

LOBs covered during lectures:

47. Signs of impending parturition
48. Induction of parturition
49. Dystocia
50. Cesarean section
51. Post-partum complications
52. Examination of the stallion for breeding soundness
53. Abnormalities of the genital tract
54. Abnormal reproductive behavior in stallions
55. Reproductive management
56. Artificial insemination

Week 7

LOBs covered during lectures:

Bovine

57. Anatomy of the reproductive system of the cow
58. Initiation of puberty in heifers

59. Neuroendocrine control of estrus and ovulation
60. Inducing parturition or abortion in cattle
61. Management to prevent dystocia
62. Dystocia fetal and maternal causes
63. Obstetric procedures and decision making
64. Forced extraction
65. Fetotomy
66. Cesarean section

Week 8

LOBs covered during lectures:

67. Retained fetal membranes etiology, clinical signs, complications and treatment
68. Post-partum uterine infection
69. Cystic ovarian follicles
70. Post-partum anestrus and its management in dairy cattle
71. Fetal disease and abortion-diagnosis and causes
72. Infectious agents (revision of Vet -304)
73. Non-infectious causes
74. Strategies to decrease neonatal calf loss in beef herds
75. Management to decrease neonatal loss of dairy heifers
76. Bull breeding soundness
77. Bovine semen quality control in artificial insemination

Week 9

LOBs covered during lectures:

Small ruminants

78. Anatomy of the Ewe and Doe
79. Estrous cycle and gestation of the Ewe and Doe
80. Breeding soundness examination of the female
81. Breeding management
82. Control of estrous cycle
83. Increasing twinning rates
84. Artificial insemination
85. Pregnancy determination
86. Antepartum care of the ewe and doe
87. Parturition
88. Induction of parturition
89. Pregnancy termination
90. Dystocia management
91. Breech presentation
92. Cesarean section
93. Fetotomy

Week 10

LOBs covered during lectures:

94. Neonatal care
95. Periparturient disease
96. Retained fetal membranes
97. Metritis and endometritis
98. Pregnancy toxemia
99. Pseudopregnancy
100. Abortion and perinatal death
101. Noninfectious causes of abortion- nutrition related, toxicologic

Week 11**LOBs covered during lectures:**

102. Infectious causes of abortion- bacterial, viral, fungal, protozoal
103. Chlamydia abortus
104. Coxiella burnetii (Q fever)
105. Campylobacter spp.
106. Brucellosis
107. Listeriosis, salmonella, leptospira, mycoplasma, anaplasma
108. Toxoplasma
109. Virus induced abortion
110. Breeding soundness examination in the ram and buck
111. Semen collection and evaluation
112. Diseases of the male- testicular and penile abnormalities

Week 12**LOBs covered during lectures:****Porcine**

113. Significant anatomy of the reproductive tract
114. Estrus cycle and pregnancy in the pig
115. Pregnancy diagnosis
116. Hormonal control of reproduction
117. Farrowing-parturition
118. Non-infectious abortion
119. Aujeszky's disease
120. Brucellosis
121. Congenital abnormalities
122. Leptospirosis
123. Mycotoxicosis abortion and mutilation
124. Prolapse of the reproductive tract
125. Stillborns and mummification
126. Seasonal infertility
127. Semen analysis

Prerequisites	None	Required	None
Course Content	Canine and feline, Equine, Bovine, Small ruminants, Porcine: <ul style="list-style-type: none"> • Reproductive anatomy • Recognition of pregnancy • Applied endocrinology of pregnancy • Pregnancy diagnosis • Care and management of pregnant animals • Specific and non-specific causes of abortion • Parturition • Dystocia • Post-partum care • Forced extraction • Fetotomy • Cesarean section 		
Teaching Methodology	Lecture based teaching and small group tutorials		
Bibliography	<ol style="list-style-type: none"> 1. <u>Arthur's Veterinary Reproduction and Obstetrics, 8 th, Noaks</u> 2. <u>Pathways To Pregnancy and Parturition, 2nd, Senger</u> 3. <u>Clinical Canine and Feline Reproduction, Kustritz</u> 4. <u>Sheep and Goat medicine, 2 nd, Pugh</u> 5. <u>Pig Health, Carr</u> 6. <u>Bovine reproduction, Hopper</u> 		
Assessment	Final written exam 100%		
Language	English		